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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,310	10/06/2003	Nobuyuki Sakamoto	008312-0306210	4139
909	7590	02/23/2005	EXAMINER	
PILLSBURY WINTHROP, LLP			SNIIZEK, ANDREW L	
P.O. BOX 10500			ART UNIT	
MCLEAN, VA 22102			PAPER NUMBER	
			2651	

DATE MAILED: 02/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/678,310

Applicant(s)

SAKAMOTO, NOBUYUKI

Examiner

Andrew L. Sniezek

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-12 is/are allowed.
- 6) ☒ Claim(s) 13-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/6/03, 12/30/03
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. The drawings filed 10/6/03 are acceptable to the examiner.

Information Disclosure Statement

3. The information disclosure statements filed 10/6/03 and 12/30/03 have been considered.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 13, 14, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 4105585 (Tsutomu) in view of Takahashi.

Tsutomi teaches an apparatus (see figure 1) and corresponding method of operation that includes a CPU (software control mode) in which software is used to initially rotate a motor (4). The motor is also driven by a hardware mode by monitoring and driving the motor dynamically through the use of counter electromotive force (see purpose and constitution). It is not clear that the driving motor is used for a spindle motor of a disk drive as claimed. Takahashi teaches that DC brushless motors are commonly used for

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driving spindle motors since they have a long life (column 7, lines 40-41). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the DC brushless motor and corresponding method of operation as taught by Tsutomu in disk drive arrangements as taught by Takahashi to provide a disk drive that is more reliable due to the use of a long life motor. The changing between the modes as set forth in claim 14 is satisfied by the selector (2) as taught by Tsutomu. The limitations of claim 16 directed to the detection of a terminal voltage is satisfied counter electromotive force detecting means of Tsutomu.

6. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsutomu and Takahashi as applied to claims 13, 14 and 16 above, and further in view of Heeren et al.

The teachings of Tsutomu and Takahashi are discussed above and incorporated herein. Claim 15 additionally sets forth to change between the modes when there is a decrease in rotational velocity. Heeren et al. teaches a similar arrangement that includes hardware and software modes (see figure 1 and corresponding disclosure) in which if there is a drag which prevents maintaining an accurate control (speed control) (column 4, line 65 – column 6, line 32) and specifically (column 5, line 46), then a central processing unit intervenes to achieve the desired rotational speed. It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of Heeren et al. into the arrangement of Tsutomu and Takahashi as applied to provide a way of maintaining rotation speed at cold temperatures which has a tendency to cause an increase in drag on the motor (column 2, lines 49-65).

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Allowable Subject Matter

7. Claims 1-12 are allowed.

8. The following is a statement of reasons for the indication of allowable subject matter: The claimed disk drive that includes the combination of a voltage determination unit that dynamically determines a voltage needed to drive a spindle motor in a steady state, a CPU that determines a second voltage needed to drive the spindle motor in a software mode, and a voltage generator which generates each of the driving voltages in the arrangement as set forth in claim 1 is neither taught by nor an obvious variation of the art of record.

Conclusion

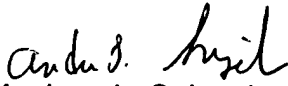
9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Nakabayashi teaches to change the voltage of a driving circuit during start up of a spindle motor. JP 02027567 teaches a magnetic disk device with a hardware control and a software control of a spindle motor.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew L. Snizek whose telephone number is 703-308-1602. The examiner can normally be reached on Mon.-Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh N Tran can be reached on 703-305-4040. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Andrew L. Sniezek
Primary Examiner
Art Unit 2651

A.L.S.
2/22/05